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# A New *Bassariscus* from the Lower Pliocene of Nebraska

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ABSTRACT: A new carnivore, *Bassariscus ogallalæ,* is described from a specimen in the University of Kansas Museum of Vertebrate Paleontology from the type locality of the Ogallala formation, Ogallala, Nebraska. Comparison is made with other known fossil species of the genus.

THROUGH the courtesy of Dr. H. H. Lane, acting curator in charge of the Department of Vertebrate Paleontology of the University of Kansas, I have been given the opportunity of studying and describing the right lower jaw of a new species of *Bassariscus.*

Fossil remains of *Bassariscus* are rare, since there have been reported heretofore only three specimens of *B. antiquus* Matthew and Cook; one from the Upper Miocene of western Nebraska, one from the Upper Miocene of western Nevada, and another from the Pliocene of San Joaquin Valley of California. There is but a single known specimen of *B. parvus* Hall from the Upper Miocene of west central Nevada.

The specimen herein reported is from near the top of the Lower Pliocene. It was collected on the Feldt Ranch, approximately two miles east and one-half mile north of the town of Ogallala, Nebraska.

The specimen was obtained during the summer of 1931 by William K. McNown and myself while making a survey of the Lower Pliocene through southern Nebraska, western Kansas and western Oklahoma for the Department of Vertebrate Paleontology of the Muesum of the University of Kansas.

*Bassariscus ogallalæ* sp. nov.

(Plate XXVI; figs. 1-3)

*Type.* No. 3749, University of Kansas Museum of Vertebrate Paleontology. Right lower jaw bearing $P_3$, $P_4$, $M_1$ and $M_2$, with alveoli of $I_3$, C, $P_1$ and $P_2$, lacking angle, condyle and coronoid process.

*Horizon and Type Locality.* From the type locality of the Ogallala formation and 35 feet below the top of the local section, Lower Pliocene, approximately two miles east and one-half mile north of the town of Ogallala, Keith county, Nebraska, on the Feldt ranch. (The correlation was made by M. K. Elias, member of the Kansas Geological Survey.)

*Diagnosis.* See Table 2 of Measurements and Ratios. The length of $M_1$ and $M_2$ are the same, making the ratio, length of $M_1$ to the length of $M_2$, 100 or 1. The ratio, length of the talonid of $M_1$ to the length of the trigonid of $M_1$; and the ratio length of $M_1$ to the length of $M_2$ are greater than in any other known species of *Bassariscus;* the length of the trigonid of $M_1$, and the ratio, width of $M_2$ to the length of $M_2$ are less.

*Description of Type.* The jaw is of an adult, as is shown by the worn cusps. $P_4$ has a well-developed accessory cusp posterior and lateral to the protocone, which exceeds in size any examined of the living species, *Basariscus astutus flavus* Rhoads. There is no trace of an accessory cusp on $P_3$. $M_1$ has strong and well-developed cusps. $M_2$ has a well-developed paraconid, greatly exceeding the protoconid in size. The entoconid, hypoconulid, and hypoconid are distinct and well developed. The distance across $M_2$ from the top of the entoconid to the top of the hypoconid is 3.5 mm. The anterior mental foramen is larger and is located more posteriorly than that of *B. astutus flavus.* It is below the middle of $P_2$, while in *B. astutus flavus* it is below the anterior root of $P_2$. The posterior mental foramen is smaller than that of *B. astutus flavus* and is below the posterior root of $P_3$ and lies slightly dorsad to the anterior mental foramen, a condition not observed in *B. astutus flavus.* The inferior dental foramen is larger, and is situated more posterior to the anterior surface of the ascending ramus, although closer to $M_2$ than in *B. astutus flavus.* The nearness of the dental foramen to $M_2$ is accounted for by the large development of that tooth. The jaw is deeper, thicker, and heavier, though shorter, than that of *B. astutus flavus.*

*Remarks.* The comparison of *B. ogallalæ* with that of other fossil *Bassariscus* shows the following similarities and differences. (See Table 1.) Hall[1] has placed *Probassariscus antiquus matthewi* Merriam[2] in synonomy with *Bassariscus antiquus* Matthew and Cook.[3] A comparison of *B. ogallalæ* with *B. antiquus* shows a slightly smaller $M_1$ with greatest difference in the width of the talonid, which is an average of 0.6 mm. smaller. The ratio, width of the talonid of $M_1$ to the length of $M_1$ is less than in *B. ogallalæ* and does not fall within the limits of individual variation of *B. antiquus*. *B. ogallalæ* may be distinguished from *B. antiquus* by the size of $M_2$. $M_1$ and $M_2$ of *B. ogallalæ* are the same length, making the ratio, length of $M_1$ to the length of $M_2$, 100 or 1. The ratio, width of $M_2$ to the length $M_2$ is 42.9, the smallest known ratio of any *Bassariscus*.

*Bassariscus ogallalæ* is distinguished from *Bassariscus parvus* Hall[4] by the ratio, length of the talonid of $M_1$ to the length of the trigonid of $M_1$, which is 10.7, greater in *B. ogallalæ*. Another outstanding difference between *B. ogallalæ* and *B. parvus* is the crowded condition of the premolars of the latter, which does not occur in *B. ogallalæ*.

The specimen is named for the Ogallala formation, from which it was collected.

1. Hall, E. R., Univ. Calif. Publ. Bull. Dept. Geol., Vol. 16, No. 11, p. 437, March 17, 1927.
2. Merriam, J. C., Univ. Calif. Publ. Bull. Dept. Geol., Vol. 6, p. 246, Part 2, Sept. 16, 1911.
3. Matthew and Cook, Bull. Am. Mus. Nat. Hist., Vol. 27, p. 337, Sept. 3, 1909.
4. Hall, E. R., op. cit., p. 435.

## TABLE I

Measurements (in millimeters) and ratios of measurements of $M_1$ and $M_2$ of the fossil forms of *Bassariscus*.

U. C. C. V. P., University of California Collection of Vertebrate Paleontology.
A. M. N. H., American Museum of Natural History.
K. U. M. V. P., Kansas University Museum of Vertebrate Paleontology.
C. I. T. C. V. P., California Institute of Technology Collection of Vertebrate Paleontology.

| Name, catalogue number and collection. | Locality. | $M_1$ length | $M_1$ length of talonid | $M_1$ length of trigonid | Ratio, length of talonid of $M_1$ to length of trigonid of $M_1$ | $M_1$ width of talonid | Ratio, width of talonid of $M_1$ to length of $M_1$ | $M_2$ length | Ratio, length of $M_1$ to length of $M_2$ | $M_2$ width | Ratio, width of $M_2$ to length of $M_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Bassariscus antiquus:* | | | | | | | | | | | |
| *12539 U. C. C. V. P. | Virgin Valley, Nevada, Upper Miocene... | 7.5 | 3.2 | 4.3 | 74.4 | 3.7 | 49.3 | 5.8 | 77.3 | 3.2 | 55.2 |
| *13860 A. M. N. H.. | Sioux County, Nebraska, Upper Miocene.. | 7.5 | 3.2 | 4.3 | 74.4 | 3.5 | 46.7 | 5.7 | 76.0 | 2.8 | 49.1 |
| †66 C. I. T. C. V. P.. | Kern County, California..... | 7.5 | 3.2 | 4.3 | 74.4 | 3.6 | 48.0 | ..... | ..... | ..... | ..... |
| *Bassariscus parvus:* | | | | | | | | | | | |
| *19768 U. C. C. V. P. | Stewart Valley, Nevada, Upper Miocene.. | 6.9 | 2.7 | 4.2 | 64.3 | 3.1 | 44.9 | ..... | ..... | ..... | ..... |
| *Bassariscus ogallalæ:* | | | | | | | | | | | |
| 3749 K. U. M. V. P.. | Keith County, Nebraska, Lower Pliocene. | 7. | 3. | 4. | 75. | 3. | 42.9 | 7. | 100. | 3. | 42.9 |

* Taken from Hall. Univ. Calif. Publ. Bull. Dept. Geol. Vol. 16, No. 11, p. 447, March 17, 1927.
† Taken from Hall. Journ. Mammalogy, Vol. 11, No. 1, February, 1930.

### EXPLANATION OF MEASUREMENTS (HALL)[5]

$M_1$, length; taken at cingulum; thus, usually, but not always, the greatest length.

$M_1$, length of talonid; taken on lateral side of tooth from posterior base of protoconid to posteriormost extension of talonid.

$M_1$, length of trigonid; taken from posterior base of protoconid to anterior end of tooth at cingulum.

$M_1$, width of talonid; taken from indentation on lateral side of tooth just behind the protoconid to opposite side of tooth and perpendicular to longitudinal axis of tooth.

$M_2$, length; taken from cingulum at posterior end of tooth to most anterodorsal point of tooth, usually but not always, greatest length.

$M_2$, width; taken from indentation on lateral side of tooth just behind the protoconid to opposite side of tooth and perpendicular to longitudinal axis of tooth.

## TABLE 2

### Measurements and Ratios of *Bassariscus ogallalæ*

The ratios given in the table are the actual ratios multiplied by 100.

| | mm. |
|---|---|
| Length from posterior border of canine aveolus to posterior border of $M_2$ | 29 |
| Length of $P_4$ to $M_2$, inclusive | 18.2 |
| Length of $P_3$ to $M_2$, inclusive | 22 |
| Length of $P_3$ and $P_4$, inclusive | 8 |
| Length of $P_3$ | 4 |
| Breadth of $P_3$ | 2 |
| Breadth of $P_4$ | 2.9 |
| Length of $P_4$ | 4.5 |
| Length of $M_1$ | 7 |
| Breadth of $M_1$ | 3.5 |
| Length of $M_2$ | 7 |
| Breadth of $M_2$ | 3 |
| Length of talonid of $M_1$ | 3 |
| Length of trigonid of $M_1$ | 4 |
| Ratio, length of talonid of $M_1$ to length of trigonid of $M_1$ | 75 |
| Width of talonid of $M_1$ | 3 |
| Ratio, width of talonid of $M_1$ to length of $M_1$ | 42.9 |
| Ratio, length of $M_1$ to length of $M_2$ | 100 or 1 |
| Ratio, width of $M_2$ to length of $M_2$ | 42.9 |
| Length of alveolus of canine | 3 |
| Length of alveolus of $P_2$ | 3.5 |
| Length of alveolus of $P_1$ | 2 |
| Breadth of alveolus of $P_1$ | 1.5 |
| Breadth of alveolus of $P_2$ | 1.5 |
| Depth of jaw beneath $M_1$ | 8 |

5. Hall, E. R., Op. Cit. p. 445.

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